



**Montana Department of
ENVIRONMENTAL QUALITY**

Brian Schweitzer, Governor

P. O. Box 200901

Helena, MT 59620-0901

(406) 444-2544

Website: www.deq.mt.gov

**PRELIMINARY DETERMINATION
ON PERMIT APPLICATION**

Date of Mailing: August 4, 2008

Name of Applicant: Montana Air National Guard

Source: Military Aircraft Operations and Support

Proposed Action: The Department of Environmental Quality (Department) proposes to issue a permit, with conditions, to the above-named applicant. The application was assigned Permit Application Number 2930-03.

Proposed Conditions: See attached.

Public Comment: Any member of the public desiring to comment must submit such comments in writing to the Air Resources Management Bureau (Bureau) of the Department at the above address. Comments may address the Department's analysis and determination, or the information submitted in the application. In order to be considered, comments on this Preliminary Determination are due by September 3, 2008. Copies of the application and the Department's analysis may be inspected at the Bureau's office in Helena. For more information, you may contact the Department.

Departmental Action: The Department intends to make a decision on the application after expiration of the Public Comment period described above. A copy of the decision may be obtained at the above address. The permit shall become final on the date stated in the Department's Decision on this permit, unless an appeal is filed with the Board of Environmental Review (Board).

Procedures for Appeal: Any person jointly or severally adversely affected by the final action may request a hearing before the Board. Any appeal must be filed by the date stated in the Department's Decision on this permit. The request for a hearing shall contain an affidavit setting forth the grounds for the request. Any hearing will be held under the provisions of the Montana Administrative Procedures Act. Submit requests for a hearing in triplicate to: Chairman, Board of Environmental Review, P.O. Box 200901, Helena, MT 59620.

For the Department,

Vickie Walsh
Air Permitting Program Supervisor
Air Resources Management Bureau
(406) 444-3490

Julie Merkel
Air Quality Specialist
Air Resources Management Bureau
(406) 444-3626

VW: JM
Enclosures

AIR QUALITY PERMIT

Issued To: Montana Air National Guard
2800 Airport Avenue B
Great Falls, MT 59404-5570

Permit #2930-03
Application Complete: 07/11/08
Preliminary Determination Issued: 08/04/08
Department Decision Issued:
Permit Final:
AFS #013-2930

An air quality permit, with conditions, is hereby granted to Montana Air National Guard (MANG), pursuant to Sections 75-2-204 and 211, Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740 *et seq.*, as amended, for the following:

Section I: Permitted Facilities

A. Facility Location

The legal description of the MANG facility is in the Southeast ¼ of Section 8, Township 20 North, Range 3 East, Cascade County, Montana. The emissions at the MANG facility are primarily a result of fuel combustion in various boilers, heaters, emergency generators, a grit blasting operation, and the engine test cell. A complete list of permitted equipment is contained in the permit analysis.

B. Current Permit Action

On June 13, 2008, MANG submitted information to the Department of Environmental Quality (Department) regarding a change in operations at the Great Falls facility resulting from the Base Realignment and Closure (BRAC) Commission's final and approved recommendations. The facility is in the process of transitioning from the F-16 fighter aircraft with the F110-General Electric (GE)-100 engines to the larger F-15 fighter aircraft with two 100-Pratt and Whitney (PW)-200 engines. Prior to 2001, the facility was permitted for the engines used in the F-15 aircraft. The current request is to return to using those engines and return to the permitted conditions associated with those engines.

After reviewing the information, the Department determined that a modification would be required to change the conditions in the permit. MANG submitted a permit application fee and an affidavit of proof of publication of public notice and the application was deemed complete on July 11, 2008. The current permit action includes the change in engines that will be tested in the engine Test Cell, and also updates permit language to reflect current permit language used by the Department.

Section II: Conditions and Limitations

A. Operational Requirements

1. MANG shall only burn natural gas in all boilers, heaters, and furnaces (ARM 17.8.1204).

2. The engine test cell is limited to 1023 hours of operation during any rolling 12-month period, designated as follows (ARM 17.8.1204):

Idle Mode	509 hours per rolling 12-month time period
Approach Mode	124 hours per rolling 12-month time period
Military Mode	338 hours per rolling 12-month time period
Afterburner Mode	52 hours per rolling 12-month time period

3. A submerged fill pipe shall be used while loading gasoline into stationary tanks with a capacity of 250 gallons or more, unless the tanks are equipped with a vapor control system (ARM 17.8.324).

4. Fuel consumption is limited to the following amounts calculated over a rolling 12-month period (ARM 17.8.1204).

Jet fuel by turbine units	120,000 gallons
Diesel/Jet fuel by reciprocating engines	14,000 gallons
Gasoline by reciprocating engines	12,500 gallons

5. MANG shall operate and maintain the baghouse on the wood-working system (ARM 17.8.749).

6. The grit blast room (unit) shall be vented to a cyclone (ARM 17.8.752).

B. Emission Limitations

1. MANG shall not cause or authorize the use of any street, road or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).
2. MANG shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed on or before November 23, 1968, that exhibit an opacity of 40% or greater averaged over 6 consecutive minutes (ARM 17.8.304).
3. MANG shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).
4. The sulfur content of liquid or solid fuel shall be limited to 1 lb/MMBtu (ARM 17.8.322).
5. The sulfur content of gaseous fuel shall be limited to 50 grains/100 ft³ calculated as hydrogen sulfide at standard conditions (ARM 17.8.322).

C. Testing Requirements

1. The Department may require testing (ARM 17.8.105).
2. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

D. Operational Reporting Requirements

1. MANG shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. This information may be used for calculating operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations. Information shall include the following and be in the units required by the Department (ARM 17.8.505):

- a. Hours of operation for the engine test cell.
- b. Gallons of fuel consumed for the following source(s):
 - i. Jet fuel by turbine units;
 - ii. Diesel/Jet fuel by reciprocating engines; and
 - iii. Gasoline by reciprocating engines.
2. MANG shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745 that would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new emission unit. The notice must be submitted to the Department, in writing, 10 days prior to start-up or use of the proposed de minimis change or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change and must include the information requested in ARM 17.8.745(1)(d) (ARM 17.8.745).
3. MANG shall document, by month, the number of hours that the engine test cell operated in idle mode, approach mode, military mode, and afterburner mode. By the 25th day of each month, MANG shall total the number of hours the engine test cell operated in each mode for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.2. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).
4. MANG shall document, by month, the number of gallons of fuel consumed by the jet fuel turbine engines, diesel/jet reciprocating engines, and gasoline reciprocating engines. By the 25th day of each month, MANG shall the number of gallons of fuel consumed by the jet fuel turbine engines, diesel/jet reciprocating engines, and gasoline reciprocating engines for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.2. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).
5. MANG shall annually certify that its actual emissions are less than those that would require the source to obtain an air quality operating permit as required in ARM 17.8.1204. The annual certification shall comply with the certification requirements of ARM 17.8.1207. The annual certification shall be submitted

- with the annual emission inventory information.
6. All records compiled in accordance with this permit must be maintained by MANG as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

Section III: General Conditions

- A. Inspection - MANG shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver - The permit and all the terms, conditions, and matters stated herein shall be deemed accepted, if MANG fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving MANG of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).
- D. Enforcement - Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement as specified in Section 75-2-401, *et seq.*, MCA.
- E. Appeals - Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.
- F. Permit Inspection - As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by Department personnel at the location of the permitted source.
- G. Construction Commencement - Construction must begin within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall be revoked.
- H. Permit Fees - Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by MANG may be grounds for revocation of this permit, as required by that Section and rules adopted thereunder by the Board.

PERMIT ANALYSIS
Montana Air National Guard
Permit #2930-03

I. Introduction/Process Description

A. Permitted Equipment

The following is a list and description of permitted equipment at the Montana Air National Guard (MANG) facility:

1. Boilers, heaters, furnaces

Each of the individual boilers, heaters, and furnaces all have less than 10 million British thermal units per hour (MMBtu/hr) heat input rating. The total heat input from all 69 units is approximately 45.5 MMBtu/hr.

2. Spray booth

The spray booth is used for surface coating of miscellaneous surfaces. Four types of spray are used, which include solvent-based paint, water-based paint, primer, and thinner. The maximum amount of spray used in the booth is 0.5 gallons per hour (gal/hr).

3. Engine test cell

An engine test generally lasts about 2 hours and is conducted in the test cell at four different modes of operation, which include idle mode, approach mode, military mode, and afterburner mode.

4. Emergency generators and engines

Twelve of the emergency generators are powered by diesel fuel and five of the generators are powered by gasoline. The four emergency engines are powered by gasoline.

5. Storage tanks and delivery trucks

The storage tanks consist of 12 jet fuel tanks, 1 gasoline tank, and 1 diesel tank.

6. Aerospace ground equipment

A number of different types of aerospace ground equipment (such as air compressors, generators, deicers, etc.) are used at the base. Some of the generator sets are turbine units, while the rest are reciprocating engine units. The fuel used in the equipment is jet fuel, diesel fuel, or gasoline.

7. Wood working

The woodworking system includes a baghouse capture system with 80% control efficiency.

8. Degreaser

The degreaser is used for cleaning and is used in the NDI shop. The unit contains 25 gallons of degreaser at any time.

9. Grit Blast Room

The grit blast room incorporates a 1992 Pauli and Griffen Co., Model #15-12-20/part #011-000 Grit Blast Unit that serves as a dry strip process utilizing plastic media (beads) to separate paint from military equipment and materials. Particulate emissions from the source are controlled by a cyclone.

B. Source Description

MANG is located within the Southeast ¼ of Section 8, Township 20 North, Range 3 East, Cascade County, Montana.

MANG provides a trained and equipped combat-ready air defense for mobilization in time of war or national emergency. The base provides facilities where personnel refuel, maintain, perform light repairs, and stage the aircraft onto the runways of the adjacent airport. To support these functions, the base contains facilities for the maintenance of vehicles and other support equipment, a number of small office buildings, and a supply and shipping warehouse.

The emissions from MANG are primarily a result of fuel combustion in various boilers, heaters, emergency generators, and the engine test cell. Approximately 60 tests are performed in the engine test cell each year. A complete record of each test (type of engines tested, duration of tests in each mode, fuel type and amount used, etc.) is kept at the base.

A number of different types of aerospace ground equipment (such as air compressors, generators, deicers, etc.) are used at the base. Some of the generator sets are turbine units, while the rest are reciprocating engine units. The fuel used in the equipment is jet fuel, diesel fuel, or gasoline. Approximately 15,000 gallons of fuel are used in a year.

C. Permit History

Permit #2930-00 was issued to MANG on June 14, 1996. The permit established enforceable limits for carbon monoxide (CO) and oxides of nitrogen (NO_x) emissions from the engine test cell and aerospace ground equipment for the purposes of bringing the potential to emit of the facility to less than 100 tons/year for each regulated pollutant. This permit established MANG as a synthetic minor source and, as such, the facility was not required to obtain a Title V Operating Permit.

On December 22, 2000, MANG was issued **Permit #2930-01** for the installation and operation of a grit blasting room. The grit blasting room serves as a dry strip process utilizing plastic media (beads) to separate paint from military equipment and materials. Particulate emissions from the source are controlled by a cyclone. Because potential emissions from the grit blast room exceeded 15 tons per year, the permit action was a permit alteration. Permit #2930-01 replaced Permit #2930-00.

On November 16, 2001, MANG submitted a request to modify Permit #2930-01. In January 2001, MANG began the transition of flying the F-16's with the 100-Pratt and Whitney (PW)-200 engine to flying the F-16's with the new F110-General Electric (GE)-100 engine. Evaluations of the new GE engine in the engine test cell began in August 2001. MANG requested to decrease the permit limit on hours of operation in the engine test cell in order to keep the potential emissions below the Title V operating permit threshold. **Permit #2930-02** replaced Permit #2930-01.

D. Current Permit Action

On June 13, 2008, MANG submitted information to the Department of Environmental Quality (Department) regarding a change in operations at the Great Falls facility resulting from the Base Realignment and Closure (BRAC) Commission's final and approved recommendations. The facility is in the process of transitioning from the F-16 fighter aircraft with the F110-GE-100 engines to the larger F-15 fighter aircraft with two 100-PW-200 engines. Prior to 2001, the facility was permitted for the engines used in the F-15 aircraft. The current request is to return to using those engines and return to the permitted conditions associated with those engines.

After reviewing the information, the Department determined that a modification would be required to change the conditions in the permit. MANG submitted a permit application fee and an affidavit of proof of publication of public notice and the application was deemed complete on July 11, 2008. The current permit action includes the change in engines that will be tested in the engine Test Cell, and also updates permit language to reflect current permit language used by the Department. **Permit #2930-03** replaces Permit #2930-02.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

II. Applicable Rules and Regulations

The following are partial explanations of some rules and regulations applicable to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available, upon request, from the Department. Upon request, the Department will provide references for the location of any applicable rule or regulation and provide copies where appropriate.

A. ARM 17.8, Subchapter 1 - General Provisions, including, but not limited to:

1. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.
2. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source, or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*,

Montana Code Annotated (MCA).

MANG shall comply with all requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

3. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.
4. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in a reduction in the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner that a public nuisance is created.

B. ARM 17.8, Subchapter 2 - Ambient Air Quality, including, but not limited to:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
6. ARM 17.8.221 Ambient Air Quality Standard for Visibility
7. ARM 17.8.222 Ambient Air Quality Standard for Lead
8. ARM 17.8.223 Ambient Air Quality Standard for PM₁₀

MANG must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 - Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. (1) This rule requires that no person may cause or authorize emissions to be discharged to an outdoor atmosphere from any source installed on or before November 23, 1968, that exhibit an opacity of 40% or greater averaged over 6 consecutive minutes. (2) This rule requires that no person may cause or authorize emissions to be discharged to an outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.
2. ARM 17.8.308 Particulate Matter, Airborne. Under this section, MANG shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.
3. ARM 17.8.309 Particulate Matter Fuel, Burning Equipment. This section requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this section.
4. ARM 17.8.310 Particulate Matter, Industrial Process. This section requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this section.

D. ARM 17.8, Subchapter 5 - Air Quality Permit Application, Operation and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. MANG shall submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. MANG submitted the appropriate permit application fee for the current permit action.
2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit, excluding an open burning permit, issued by the Department. This operation fee is based on the actual or estimated amount of air pollutants emitted during the previous calendar year.

An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions which pro-rate the required fee amount.

E. ARM 17.8, Subchapter 7 - Permit, Construction and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter unless indicated otherwise in a specific subchapter.
2. ARM 17.8.743 Montana Air Quality Permits – When Required. This rule requires a person to obtain an air quality permit or permit alteration to construct, alter, or use any air contaminant sources that have the potential to emit (PTE) greater than 25 tons per year of any pollutant. MANG has a PTE greater than 25 tons per year of particulate matter (PM), NO_x, volatile organic compounds (VOCs), and CO; therefore, an air quality permit is required.
3. ARM 17.8.744 Montana Air Quality Permits – General Exclusions. This rule identifies the activities that are not subject to the Montana air Quality Permit program.
4. ARM 17.8.745 Montana Air Quality Permits – Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana air Quality Permit Program.
5. ARM 17.8.748 New or Altered Emitting Units – Permit Application Requirements. This rule requires that a permit application be submitted prior to installation, alteration, or use of a source. MANG submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. MANG submitted an affidavit of publication of public notice for the July 11, 2008, issue of *the Great Falls Tribune*, a newspaper of general circulation in the Town of Great Falls in Cascade County, as proof of

compliance with the public notice requirements.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.
7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.
8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.
9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving MANG of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*
10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.
11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or altered source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.
12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).
13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.

F. ARM 17.8, Subchapter 8, Prevention of Significant Deterioration of Air Quality, including,

but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.
2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications-- Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification with respect to each pollutant subject to regulation under the Federal Clean Air Act (FCAA) that it would emit, except as this subchapter would otherwise allow.

This facility is not a major stationary source because it is not a listed source and does not have the potential to emit more than 250 tons per year (excluding fugitive emissions) of any air pollutant.

G. ARM 17.8, Subchapter 12 - Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:
 - a. PTE > 100 tons/year of any pollutant.
 - b. PTE > 10 tons/year of any one hazardous air pollutant (HAP), or PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule.
 - c. Sources with the PTE > 70 tons/year of PM₁₀ in a serious PM₁₀ non-attainment area.
2. ARM 17.8.1204, Air Quality Operating Permit Program Applicability. Title V of the FCAA Amendments of 1990 requires that all sources, as defined in ARM 17.8.1204 (1), obtain a Title V Operating Permit. In reviewing and issuing Montana Air Quality Permit #2930-03 for MANG, the following conclusions were made:
 - a. The facility's PTE is less than 100 tons/year for all criteria pollutants.
 - b. The facility's PTE is less than 10 tons/year of any one HAP and less than 25 tons/year of all HAPs.
 - c. This source is not located in a serious PM₁₀ non-attainment area.
 - d. This facility is not subject to any current NESHAP standards.
 - e. This source is not a Title IV affected source nor a solid waste combustion unit.
 - f. This source is not an EPA designated Title V source.
 - g. (2) The Department may exempt a source from the requirement to obtain an air quality operating permit by establishing federally enforceable limitations which limit that source's potential to emit.
 - i. In applying for an exemption under this section, the owner or operator of the source shall certify to the Department that the source's potential to emit, does not require the source to obtain an air quality operating

permit.

- ii. Any source that obtains a federally enforceable limit on potential to emit shall annually certify that its actual emissions are less than those that would require the source to obtain an air quality operating permit. MANG has taken federally enforceable permit limits to keep potential emissions below major source permitting thresholds. Therefore, the facility is not a major source and, thus, a Title V operating permit is not required.

The Department determined that the annual reporting requirements contained in the permit are sufficient to satisfy this requirement.

3. ARM 17.8.1207 Certification of Truth, Accuracy, and Completeness. The compliance certification submittal required by 17.8.1204(3) shall contain certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under this subchapter shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

III. Emission Inventory

SOURCE	Tons/Year					
	PM	PM ₁₀	NO _x	VOC	CO	SO _x
Boilers, Heaters, Furnaces	2.39	2.39	19.95	0.76	4.19	0.08
Spray Booth	0.00	0.00	0.00	11.69	0.00	0.00
Engine Test Cell	0.99	0.99	56.42	1.07	13.88	3.72
Emergency Generators / Engines	0.93	0.93	13.08	2.55	14.58	0.86
Storage Tanks / Delivery Trucks	0.00	0.00	0.00	2.88	0.00	0.00
Aerospace Ground Equipment	0.67	0.66	9.46	2.78	46.38	8.74
Woodworking	21.91	10.95	0.00	0.00	0.00	0.00
Degreasers	0.00	0.00	0.00	0.21	0.00	0.00
Grit Blast Room	0.79	0.79	0.00	0.00	0.00	0.00
Total	27.33	17.29	83.53	41.11	99.5	13.40

Boilers, Heaters, Furnaces

PM Emissions:

Emission Factor: 12.00 lb/MMft³ gas {AP-42, 1.4-1, Rev 7/93}
Fuel Consumption: 399 MMft³
Calculations: 12.0 lb/ MMft³ gas * 399 MMft³ * 0.0005 ton/lb = 2.39 ton/yr

PM₁₀ Emissions:

Emission Factor: 12.00 lb/ MMft³ gas {AP-42, 1.4-1, Rev 7/93}
Fuel Consumption: 399 MMft³/yr
Calculations: 12.0 lb/ MMft³ gas * 399 MMft³ * 0.0005 ton/lb = 2.39 ton/yr

NO_x Emissions:

Emission Factor: 100.0 lb/ MMft³ gas {AP-42, 1.4-2, Rev 7/93}
Fuel Consumption: 399 MMft³/yr
Calculations: 100.0 lb/ MMft³ gas * 399 MMft³ * 0.0005 ton/lb = 19.95 ton/yr

VOC Emissions:

Emission Factor: 3.83 lb/ MMft³ gas {AP-42, 1.4-4, Rev 7/93}
Fuel Consumption: 399 MMft³/yr
Calculations: 3.8 MMft³ gas * 399 MMft³ * 0.0005 ton/lb = 0.76 ton/yr

CO Emissions:

Emission Factor: 21.0 lb/ MMft³ gas {AP-42, 1.4-2, Rev 7/93}
 Fuel Consumption 399 MMft³/yr
 Calculations: 399 MMft³/yr * 21.0 lb/ MMft³ gas * 0.0005 ton/lb = 4.19 ton/yr

SO_x Emissions:

Emission Factor: 0.60 lb/ MMft³ gas {AP-42, 1.4-2, Rev 7/93}
 Fuel Consumption: 399 MMft³/yr
 Calculations: 399 MMft³/yr * 0.6 lb/ MMft³ gas * 0.0005 ton/lb = 0.08 ton/yr

Spray Booth

Maximum amount sprayed in spray booth = 0.5 gal/hr

	Solvent Base	Water Base	Primer	Thinner	Total
Amount (gal/yr)	1226	1226	263	1664	4379
Density (lb/gal)	7.9	7.6	9.4	7.4	-
% VOC (w/w)	80	17	70	100	-
VOC (lb/gal)	1.77	0.36	0.40	2.81	5.34
VOC (lb/yr)	7748	1584	1731	12314	23376

VOC Emissions :

Emission Factor: 5.34 lb/gal {Permit Application - Average % VOC of solvents used}
 Hours of Operation: 8760 hr/yr
 Spray Consumed: 0.5 gal/hr
 Calculations: 0.5 gal/hr * 5.34 lb/gal * 8760 hr/yr * 0.0005 ton/lb = 11.69 ton/yr

Engine Test Cell

Power Setting	Duration (hrs)	Potential (engines/yr)	Total (hrs/yr)	Emission Factor (lb/hr/engine)				
				PM	NO _x	VOC	CO	SO _x
Idle	1.07	476	509.32	0.12	3.43	3.33	24.96	1.04
Approach	0.26	476	123.76	2.4	50.08	0.51	8.18	5.11
Military	0.71	476	337.96	3.6	285.66	1.06	9.52	10.58
Afterburner	0.11	476	52.36	7.76	160.36	0.52	206.92	51.73
Total	2.15	476	1023.4					
Weighted Emission Factor (lb/hr)			1023.4	1.94	110.30	2.10	27.14	7.28

PM Emissions:

{Composition & Photochemical Reactivity of Turbine Engine Exhaust Report ESL-TR-84-28, Prepared for Air Force Engineering and Services Center, Sept, 1984}

Emission Factor: 1.94 lb/hr
 Hours Tested: 1023 hr/yr
 Calculations: 1.94 lb/hr * 1023 hrs/yr * 0.0005 tons/lb = 0.99 tons/yr

PM-10 Emissions:

{Composition & Photochemical Reactivity of Turbine Engine Exhaust Report ESL-TR-84-28, Prepared for Air Force Engineering and Services Center, Sept, 1984}

Emission Factor: 1.94 lb/hr
 Hours Tested: 1023 hr/yr
 Calculations: 1.94 lb/hr * 1023 hr/yr * 0.0005 ton/lb = 0.99 ton/yr

NO_x Emissions:

{Composition & Photochemical Reactivity of Turbine Engine Exhaust Report ESL-TR-84-28, Prepared for Air Force Engineering and Services Center, Sept, 1984}

Emission Factor: 110.30 lb/hr
 Hours Tested: 1023 hr/yr
 Calculations: $110.30 \text{ lb/hr} * 1023 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 56.42 \text{ ton/yr}$
 VOC Emissions:

{Composition & Photochemical Reactivity of Turbine Engine Exhaust Report ESL-TR-84-28, Prepared for Air Force Engineering and Services Center, Sept, 1984}

Emission Factor: 2.10 lb/hr
 Hours Tested: 1023 hr/yr
 Calculations: $2.10 \text{ lb/hr} * 1023 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 1.07 \text{ ton/yr}$

CO Emissions:

{Composition & Photochemical Reactivity of Turbine Engine Exhaust Report ESL-TR-84-28, Prepared for Air Force Engineering and Services Center, Sept, 1984}

Emission Factor: 27.14 lb/hr
 Hours Tested: 1023 hr/yr
 Calculations: $27.14 \text{ lb/hr} * 1023 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 13.88 \text{ ton/yr}$

SO_x Emissions:

{Composition & Photochemical Reactivity of Turbine Engine Exhaust Report ESL-TR-84-28, Prepared for Air Force Engineering and Services Center, Sept, 1984}

Emission Factor: 7.28 lb/hr
 Hours Tested: 1023 hr/yr
 Calculations: $7.28 \text{ lb/hr} * 1023 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 3.72 \text{ ton/yr}$

Emergency Generators and Engines

There are twelve (12) diesel generators

Units	No. of Units	Fuel Type	Capacity (kw)	Potential (kw-hr/yr)
SRC 70	1	Diesel	230	115000
SRC 71	1	Diesel	150	75000
SRC 72	1	Diesel	60	30000
SRC 73	1	Diesel	45	22500
SRC 74	1	Diesel	22.5	11250
SRC 75	1	Diesel	50	25000
SRC 76	1	Diesel	200	100000
SRC 77	1	Diesel	200	100000
SRC 78	1	Diesel	200	100000
SRC 79	1	Diesel	10	5000
SRC 80	1	Diesel	10	5000
SRC 81	1	Diesel	5	2500
			1182.5	591250

Gasoline Generators (5) & Gasoline Engines (4)

SRC 82	1	Gasoline	3	1500
SRC 83	1	Gasoline	5	2500
SRC 84	1	Gasoline	5	2500
SRC 85	1	Gasoline	5	2500
SRC 86	1	Gasoline	5	2500
SRC 87	4	Gasoline	194	97000

Diesel Generators (12)

TSP Emissions:

Emission Factor: 1.34 gm/kw-hr {AP-42, 3.3-2, Rev 7/93}

Kilowatts Consumed 591250 kw-hr/yr

Calculations: $1.34 \text{ gm/kw-hr} * 591250 \text{ kw-hr/yr} * 1 \text{ lb/453.6 gm} * 0.0005 \text{ ton/lb} = 0.87 \text{ ton/yr}$

PM-10 Emissions:

Emission Factor: 1.34 gm/kw-hr {AP-42, 3.3-2, Rev 7/93}

Kilowatts Consumed 591250 kw-hr/yr Assume 100% TSP

Calculations: $1.34 \text{ gm/kw-hr} * 591250 \text{ kw-hr/yr} * 1 \text{ lb/453.6 gm} * 0.0005 \text{ ton/lb} = 0.87 \text{ ton/yr}$ NO_x Emissions:

Emission Factor: 18.80 gm/kw-hr {AP-42, 3.3-2, Rev 7/93}

Kilowatts Consumed 591250 kw-hr/yr

Calculations: $18.80 \text{ gm/kw-hr} * 591250 \text{ kw-hr/yr} * 1 \text{ lb/453.6 gm} * 0.0005 \text{ ton/lb} = 12.25 \text{ ton/yr}$

VOC Emissions:

Emission Factor: 1.53 gm/kw-hr {AP-42, 3.3-2, Rev 7/93}

Kilowatts Consumed 591250 kw-hr/yr

Calculations: $1.53 \text{ gm/kw-hr} * 591250 \text{ kw-hr/yr} * 1 \text{ lb/453.6 gm} * 0.0005 \text{ ton/lb} = 1.00 \text{ ton/yr}$

CO Emissions:

Emission Factor: 4.06 gm/kw-hr {AP-42, 3.3-2, Rev 7/93}

Kilowatts Consumed 591250 kw-hr/yr

Calculations: $4.06 \text{ gm/kw-hr} * 591250 \text{ kw-hr/yr} * 1 \text{ lb/453.6 gm} * 0.0005 \text{ ton/lb} = 2.65 \text{ ton/yr}$ SO_x Emissions:

Emission Factor: 1.25 gm/kw-hr {AP-42, 3.3-2, Rev 7/93}

Kilowatts Consumed 591250 kw-hr/yr

Calculations: $1.25 \text{ gm/kw-hr} * 591250 \text{ kw-hr/yr} * 1 \text{ lb/453.6 gm} * 0.0005 \text{ ton/lb} = 0.81 \text{ ton/yr}$ **Gasoline Generators (5) & Gasoline Engines (4)**

TSP Emissions:

Emission Factor: 0.439 gm/kw-hr {AP-42, 3.3-2, Rev 7/93}

Kilowatts Consumed 108500 kw-hr/yr

Calculations: $0.439 \text{ gm/kw-hr} * 108500 \text{ kw-hr/yr} * 1 \text{ lb/453.6 gm} * 0.0005 \text{ ton/lb} = 0.05 \text{ ton/yr}$

PM-10 Emissions:

Emission Factor: 0.439 gm/kw-hr {AP-42, 3.3-2, Rev 7/93}

Kilowatts Consumed 108500 kw-hr/yr Assume 100% of TSP

Calculations: $0.439 \text{ gm/kw-hr} * 108500 \text{ kw-hr/yr} * 1 \text{ lb/453.6 gm} * 0.0005 \text{ ton/lb} = 0.05 \text{ ton/yr}$ NO_x Emissions:

Emission Factor: 6.92 gm/kw-hr {AP-42, 3.3-2, Rev 7/93}

Kilowatts Consumed 108500 kw-hr/yr

Calculations: $6.92 \text{ gm/kw-hr} * 108500 \text{ kw-hr/yr} * 1 \text{ lb/453.6 gm} * 0.0005 \text{ ton/lb} = 0.83 \text{ ton/yr}$

VOC Emissions:

Emission Factor: 13.00 gm/kw-hr {AP-42, 3.3-2, Rev 7/93}

Kilowatts Consumed 108500 kw-hr/yr

Calculations: $13.0 \text{ gm/kw-hr} * 108500 \text{ kw-hr/yr} * 1 \text{ lb/453.6 gm} * 0.0005 \text{ ton/lb} = 1.55 \text{ ton/yr}$

CO Emissions:

Emission Factor: 267.00 gm/kw-hr {AP-42, 3.3-2, Rev 7/93}

Kilowatts Consumed 108500 kw-hr/yr

Calculations: $267.0 \text{ gm/kw-hr} * 108500 \text{ kw-hr/yr} * 1 \text{ lb/453.6 gm} * 0.0005 \text{ ton/lb} = 31.93 \text{ ton/yr}$

SO_x Emissions:

Emission Factor: 0.359 gm/kw-hr {AP-42, 3.3-2, Rev 7/93}

Kilowatts Consumed 108500 kw-hr/yr

Calculations: $0.359 \text{ gm/kw-hr} * 108500 \text{ kw-hr/yr} * 1 \text{ lb/453.6 gm} * 0.0005 \text{ ton/lb} = 0.043 \text{ ton/yr}$

Storage Tanks and Delivery Trucks

Total potential loss calculated using Tanks 2.0 program

Units	No. of Units	Fuel Type	Tank Size (gal)	Capacity (gal)	Total Potential Loss (lb/yr)
SRC 88	6	Jet	25000	150000	895.47
SRC 89	1	Diesel	10000	10000	1403.33
SRC 90	1	Diesel	5000	5000	2.20
SRC 91	1	Diesel	2500	2500	1.13
SRC 92	1	Diesel	2500	2500	268.63
SRC 93	1	Diesel	60000	60000	805.48
SRC 94	1	Diesel	6000	6000	819.02
SRC 95	1	Diesel	6000	6000	869.03
SRC 96	1	Diesel	5000	5000	687.41
Total ton/yr					2.88

Aerospace Ground Equipment

Units	No. of Units	Fuel Type	Capacity (gal/hr)	Potential (gal/yr)	Limited (gal/yr)
SRC 97	9	Jet	73.58	644531	120000
Limiting Jet Fuel In Turbines				644531	120,000
SRC 98	1	Diesel/Jet	6.1314	3711	NA
SRC 99	1	Diesel/Jet	10.73	93994	NA
SRC 100	1	Diesel/Jet	6.23	54606	NA
SRC 101	1	Diesel/Jet	5.62	9235	NA
SRC 102	1	Diesel/Jet	22.69	198731	NA
SRC 103	3	Diesel/Jet	2.3	20142	NA
SRC 104	11	Diesel/Jet	14.16	124072	NA
SRC 105	4	Diesel/Jet	5.15	45117	NA
SRC 106	5	Diesel/Jet	4.7	41178	NA
SRC 107	6	Diesel/Jet	3.37	29521	NA
SRC 108	3	Diesel/Jet	13.8	120850	NA
SRC 109	2	Diesel/Jet	12.26	107422	NA
Limiting Diesel/Jet in Reciprocating Unit				938579	14000
SRC 110	2	Gasoline	13.55	118670	NA
SRC 111	1	Gasoline	6.77	59335	NA
SRC 112	9	Gasoline	5.71	50003	NA
SRC 113	2	Gasoline	0.12	1079	NA
SRC 114	9	Gasoline	9.14	80102	NA
SRC 115	1	Gasoline	4.62	40456	NA

AGE - JP-8

TSP Emissions:

Emission Factor: 0.005 lb/gal {AFSEF 2-03-001-02}
Gallons Consumed 120000 gal/yr
Calculations: $0.0050 \text{ lb/gal} * 120000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.30 \text{ ton/yr}$

PM-10 Emissions:

Emission Factor: 0.005 lb/gal {AFSEF 2-03-001-02}
Gallons Consumed 120000 gal/yr
Calculations: $0.0048 \text{ lb/gal} * 120000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.29 \text{ ton/yr}$

NO_x Emissions:

Emission Factor: 0.068 lb/gal {AFSEF 2-03-001-02}
Gallons Consumed 120000 gal/yr
Calculations: $0.0678 \text{ lb/gal} * 120000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 4.07 \text{ ton/yr}$

VOC Emissions:

Emission Factor: 0.005 lb/gal {AFSEF 2-03-001-02}
Gallons Consumed 120000 gal/yr
Calculations: $0.0048 \text{ lb/gal} * 120000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.29 \text{ ton/yr}$

CO Emissions:

Emission Factor: 0.015 lb/gal {AFSEF 2-03-001-02}
Gallons Consumed 120000 gal/yr
Calculations: $0.0154 \text{ lb/gal} * 120000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.92 \text{ ton/yr}$

SO_x Emissions:

Emission Factor: 0.140 lb/gal {AFSEF 2-03-001-02}
Gallons Consumed 120000 gal/yr
Calculations: $0.1400 \text{ lb/gal} * 120000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 8.40 \text{ ton/yr}$

AGE - Diesel/JP

BTU Rating 0.137 MMBtu/gal {Air National Guard data}

TSP Emissions:

Emission Factor: 0.31 lb/MMBtu {AP-42, 3.3-1, Rev 7/93}
Gallons Consumed 14000 gal/yr
Calculations: $0.31 \text{ lb/MMBtu} * 0.137 \text{ MMBtu/gal} * 14000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.30 \text{ ton/yr}$

PM-10 Emissions:

Emission Factor: 0.31 lb/MMBtu {AP-42, 3.3-1, Rev 7/93}
Gallons Consumed 14000 gal/yr Assume 100% TSP
Calculations: $0.31 \text{ lb/MMBtu} * 0.137 \text{ MMBtu/gal} * 14000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.30 \text{ ton/yr}$

NO_x Emissions:

Emission Factor: 4.41 lb/MMBtu {AP-42, 3.3-1, Rev 7/93}
Gallons Consumed 14000 gal/yr
Calculations: $4.41 \text{ lb/MMBtu} * 0.137 \text{ MMBtu/gal} * 14000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 4.23 \text{ ton/yr}$

VOC Emissions:

Emission Factor: 0.36 lb/MMBtu {AP-42, 3.3-1, Rev 7/93}
Gallons Consumed 14000 gal/yr
Calculations: $0.36 \text{ lb/MMBtu} * 0.137 \text{ MMBtu/gal} * 14000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.35 \text{ ton/yr}$

CO Emissions:

Emission Factor: 0.95 lb/MMBtu {AP-42, 3.3-1, Rev 7/93}
Gallons Consumed 14000 gal/yr
Calculations: $0.95 \text{ lb/MMBtu} * 0.137 \text{ MMBtu/gal} * 14000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.91 \text{ ton/yr}$

SO_x Emissions:

Emission Factor: 0.29 lb/MMBtu {AP-42, 3.3-1, Rev 7/93}
Gallons Consumed 14000 gal/yr
Calculations: $0.29 \text{ lb/MMBtu} * 0.137 \text{ MMBtu/gal} * 14000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.28 \text{ ton/yr}$

AGE – Gasoline

BTU Rating 0.11368 MMBtu/gal {Air National Guard data}

TSP Emissions:

Emission Factor: 0.10 lb/MMBtu {AP-42, 3.3-1, Rev 7/93}
Gallons Consumed 12500 gal/yr
Calculations: $0.10 \text{ lb/MMBtu} * 0.114 \text{ MMBtu/gal} * 12500 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.07 \text{ ton/yr}$

PM-10 Emissions:

Emission Factor: 0.10 lb/MMBtu {AP-42, 3.3-1, Rev 7/93}
Gallons Consumed 12500 gal/yr Assume 100% TSP
Calculations: $0.10 \text{ lb/MMBtu} * 0.114 \text{ MMBtu/gal} * 12500 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.07 \text{ ton/yr}$

NO_x Emissions:

Emission Factor: 1.63 lb/MMBtu {AP-42, 3.3-1, Rev 7/93}
Gallons Consumed 12500 gal/yr
Calculations: $1.63 \text{ lb/MMBtu} * 0.114 \text{ MMBtu/gal} * 12500 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 1.16 \text{ ton/yr}$

VOC Emissions:

Emission Factor: 3.03 lb/MMBtu {AP-42, 3.3-1, Rev 7/93}
Gallons Consumed 12500 gal/yr
Calculations: $3.03 \text{ lb/MMBtu} * 0.114 \text{ MMBtu/gal} * 12500 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 2.15 \text{ ton/yr}$

CO Emissions:

Emission Factor: 62.70 lb/MMBtu {AP-42, 3.3-1, Rev 7/93}
Gallons Consumed 12500 gal/yr
Calculations: $62.70 \text{ lb/MMBtu} * 0.114 \text{ MMBtu/gal} * 12500 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 44.55$

ton/yr

SO_x Emissions:

Emission Factor: 0.084 lb/MMBtu {AP-42, 3.3-1, Rev 7/93}
Gallons Consumed 12500 gal/yr
Calculations: $0.084 \text{ lb/MMBtu} * 0.114 \text{ MMBtu/gal} * 12500 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.06 \text{ ton/yr}$

Woodworking

Baghouse Hours of Operation: 8,760 hr/yr Potential

TSP Emissions

Emission Factor: 5.00 lb/hr {Fire V 5.0, 3-07-008-07, 7/95}
Calculations: $8760 \text{ hr/yr} * 5.00 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 21.90 \text{ ton/yr}$

PM-10 Emissions:

Emission Factor: 2.50 lb/hr {Fire V 5.0, 3-07-008-07, 7/95}
Calculations: $8760 \text{ hr/yr} * 2.50 \text{ lb/hr} * 0.0005 \text{ ton/lb} = 10.95 \text{ ton/yr}$

Baghouse Potential Material Handling

TSP Emissions

Emission Factor: 1.00 lb/ton {Fire V 5.0, 3-07-008-03, 7/95}
Potential Handling: 21.9 ton/yr
Calculations: $1.0 \text{ lb/ton} * 21.9 \text{ ton/yr} * 0.0005 \text{ ton/lb} = 0.011 \text{ ton/yr}$

PM-10 Emissions:

Emission Factor: 0.36 lb/ton {Fire V 5.0, 3-07-008-03, 7/95}
Potential Handling: 10.95 ton/yr
Calculations: $0.4 \text{ lb/ton} * 11.0 \text{ ton/yr} * 0.0005 \text{ ton/lb} = 0.002 \text{ ton/yr}$

Degreasers

Location of Station	Station Capacity (gal)	Changeouts per year	Quantity Delivered (gal/yr)
NDI Shop	25	12	1155
Density (lb/gal)	7.22		

VOC Emissions :

Emission Factor: 7.22 lb/gal {Permit Application - Average %VOC of solvents used}
% VOCs Emitted 5 %
Degreasers Consumed 1155.0 gal/yr
Calculations: $1155.0 \text{ gal/yr} * 7.22 \text{ lb/gal} * 5 \% * 0.0005 \text{ ton/lb} = 0.21 \text{ ton/yr}$

Grit Blasting Room

Maximum Process Rate: 600 lb grit blast material/hr
Emission Factor: 0.10 lb/hr (approximately 10% of grit blast media throughput is released to cyclone: Manufacturers Information)
Control Efficiency: 99.7% Cyclone Control: Manufacturers Information

PM Emissions

$600 \text{ lb/hr} * 0.10 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 262.8 \text{ ton/yr}$
 $262.8 \text{ ton/yr} * (1 - 0.997) = 0.79 \text{ ton/yr}$

PM₁₀ Emissions

$600 \text{ lb/hr} * 0.10 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 262.8 \text{ ton/yr}$
 $262.8 \text{ ton/yr} * (1 - 0.997) = 0.79 \text{ ton/yr}$

IV. BACT Analysis

A BACT determination is required for any new or altered source. MANG shall install on the new or altered source the maximum air pollution control capability, which is technologically practicable and economically feasible, except that BACT shall be used.

A joint report submitted to the United States Congress in October 1994 by the Environmental Protection Agency (EPA) and the Department of Transportation (DOT) concludes that there are no existing technologies for control of NO_x that have been applied (full scale) to aircraft engine test cells in the United States. The differences in engines, engine tests, engine test cell sizes, and engine types complicate the application of NO_x control system to engine test cells. As indicated in the EPA-DOT report, there are no feasible controls for the control of NO_x emissions from

engine test cells.

A search for available literature did not identify any technologies for controlling CO, VOC, PM, and PM₁₀ emissions from jet engine test cells. RBLC determinations indicate that no control methods are available for the control of CO and VOC emissions.

Based on the information submitted, and research conducted by the Department, BACT is considered to be no control for all pollutants.

V. Existing Air Quality

The surrounding area is considered attainment/unclassified for the Montana and National Ambient Air Quality Standards (MAAQS and NAAQS).

VI. Taking or Damaging Implication Analysis

As required by 2-10-101 through 105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (6)].
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?
	X	7a. Is the impact of government action direct, peculiar, and significant?
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
	X	7c. Has government action lowered property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?
	X	Takings or damaging implications? (Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b; the shaded areas)

Based on this analysis, the Department determined there are no taking or damaging implications associated with this permit action.

VII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy is attached.

DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air Resources Management Bureau
1520 East Sixth Avenue
P.O. Box 200901, Helena, Montana 59620-0901
(406) 444-3490

DRAFT ENVIRONMENTAL ASSESSMENT (EA)

Issued For: Great Falls Air National Guard Base
2800 Airport Avenue B
Great Falls, Montana 59404-5570

Permit Number: 2930-03

Preliminary Determination on Permit Issued: August 4, 2008

Department Decision Issued:

Final Permit Issued:

1. *Legal Description of Site:* Southeast ¼ of Section 8, Township 20 North, Range 3 East, Cascade County, Montana.
2. *Description of Project:* Under the current permit action, the Great Falls MANG Base proposed a transition from operating the F-16 fighter aircraft with the F110-GE-100 engine to the F-15 fighter aircraft with two 100-PW-200 engines. The change in aircraft operation will affect the emissions from the Engine Test Cell operations at the MANG facility.
3. *Objectives of Project:* Transition from the operation of the F-16 fighter aircraft to the F-15 fighter aircraft due to the recent BRAC Commission's final and approved recommendations.
4. *Alternatives Considered:* The "no action alternative" consists of not issuing the permit and was considered but dismissed, given that the current permit action, as proposed, will maintain compliance with all applicable rules and standards. MANG has demonstrated compliance with all applicable rules and standards as required for permit issuance.
5. *A Listing of Mitigation, Stipulations, and Other Controls:* A listing of the enforceable permit conditions and a permit analysis, including a best available control technology analysis, are contained in Permit #2930-03.
6. *Regulatory Effects on Private Property:* The Department has considered alternatives to the conditions imposed in this permit as part of the permit development. The Department has determined the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.

7. The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The “no action alternative” was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A.	Terrestrial and Aquatic Life and Habitats				X		yes
B.	Water Quality, Quantity, and Distribution				X		yes
C.	Geology and Soil Quality, Stability, and Moisture				X		yes
D.	Vegetation Cover, Quantity, and Quality				X		yes
E.	Aesthetics				X		yes
F.	Air Quality			X			yes
G.	Unique Endangered, Fragile, or Limited Environmental Resource			X			yes
H.	Demands on Environmental Resource of Water, Air, and Energy			X			yes
I.	Historical and Archaeological Sites				X		yes
J.	Cumulative and Secondary Impacts			X			yes

SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS: The following comments have been prepared by the Department.

- A. Terrestrial and Aquatic Life and Habitats
- B. Water Quality, Quantity, and Distribution
- C. Geology and Soil Quality, Stability, and Moisture
- D. Vegetation Cover, Quantity, and Quality

Operations at the facility would occur at a site previously used for the same purpose. Although, there may be increased activities during the initial testing of the engines, the activity would taper off after a period of time. No surface water or ground water quality problems are expected as a result of the current permit action. Any accidental spills or leaks from equipment would be handled according to the appropriate environmental regulations in an effort to minimize any potential impact on the immediate and surrounding area. The actions addressed in this permit would not change the soil stability or geologic substructure. The proposed changes would not result in impacts to productivity or fertility at or near the site. No unique geologic or physical features would be disturbed. Therefore, no impact to geology and soil quality, stability, and moisture would occur. Overall, the proposed project would only slightly increase potential NO_x emissions. Therefore, there would be no impacts on terrestrial and aquatic life and habitats, water quality, quantity and distribution, geology and soil quality, stability, and moisture, or vegetation cover, quantity, and quality.

- E. Aesthetics

The proposed permit action would include an increase in activities during the initial testing of the engines, which would taper off over time. However, the additional testing would not alter any scenic vista or create an aesthetically offensive site or effect.

F. Air Quality

Allowable emissions of pollutants would increase slightly as result of the current permit action. However, the allowable emissions would still be within the National Ambient Air Quality Standards and Montana Ambient Air Quality Standards.

G. Unique Endangered, Fragile, or Limited Environmental Resources

The current permit action would occur at a site that is currently used for the same purpose. There are no known unique endangered, fragile, or limited environmental resources surrounding the proposed project. However, the slight increase in NO_x emissions could result in minor impacts to any existing unique endangered, fragile, or limited environmental resource in the area.

H. Demands on Environmental Resource of Water, Air, and Energy

The changes to the facility would not impact water. Additional energy may be required at the facility; therefore, minor impacts to energy would occur. Minor demands on air resources would occur because the facility's emissions would be increasing.

I. Historical and Archaeological Sites

The proposed project would take place within the base property, a previously disturbed industrial site. According to the Montana State Historic Preservation Office, there is low likelihood of adverse disturbance to any known archaeological or historic site, given previous industrial disturbance within a given area. Therefore, it is unlikely the current permit action would have an effect on any known historic or archaeological site.

J. Cumulative and Secondary Impacts

Overall, cumulative and secondary impacts from this project would result in minor physical and biological impacts to the human environment in the immediate area. Air pollution from the facility would be controlled by Department-determined conditions in Permit #2930-03. The Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as outlined in Permit #2930-03.

8. The following table summarizes the potential economic and social effects of the proposed project on the human environment. The “no action alternative” was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A.	Social Structures and Mores				X		yes
B.	Cultural Uniqueness and Diversity				X		yes
C.	Local and State Tax Base and Tax Revenue				X		yes
D.	Agricultural or Industrial Production				X		yes
E.	Human Health			X			yes
F.	Access to and Quality of Recreational and Wilderness Activities				X		yes
G.	Quantity and Distribution of Employment				X		yes
H.	Distribution of Population				X		yes
I.	Demands for Government Services			X			yes
J.	Industrial and Commercial Activity				X		yes
K.	Locally Adopted Environmental Plans and Goals				X		yes
L.	Cumulative and Secondary Impacts			X			yes

SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS: The following comments have been prepared by the Department.

- A. Social Structures and Mores
- B. Cultural Uniqueness and Diversity
- C. Local and State Tax Base and Tax Revenue
- D. Agricultural or Industrial Production

The proposed project would take place within the base property, a previously disturbed industrial site. The project would not require additional staff or resources for testing the engines. The proposed changes would not displace or otherwise affect any agricultural land or practices. In addition, the proposed operations would not impact local industrial production.

- E. Human Health

There may be minor effects on human health due to the slight increase in emissions of pollutants. However, Permit #2930-03 incorporates conditions to ensure that the facility would be operated in compliance with all applicable rules and standards. These rules and standards are designed to be protective of human health.

- F. Access to and Quality of Recreational and Wilderness Activities

The proposed project would take place within the base property, a previously disturbed industrial site. Therefore, the project would not affect any access to or aesthetic attribute of recreational or wilderness activities in the area.

- G. Quantity and Distribution of Employment
- H. Distribution of Population

Activities from the proposed operations would not affect the quantity and distribution of employment in the area. The project would occur at a site previously used for the same purpose, and would not require additional employees.

- I. Demands of Government Services

Government services would be required for acquiring the appropriate permits from government agencies. Demands for government services would be minimal.

- J. Industrial and Commercial Activity

No additional industrial or commercial activity is expected as a result of the proposed changes.

- K. Locally Adopted Environmental Plans and Goals

The Department is not aware of any locally adopted environmental plans or goals that would be affected by the current permit action. The state standards would protect the proposed site and the environment surrounding the site.

- L. Cumulative and Secondary Impacts

Overall, cumulative and secondary impacts from this project would result in minor economic and social impacts to the human environment in the immediate area. Air pollution from the facility would be controlled by Department-determined conditions in Permit #2930-03. The Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as outlined in Permit #2930-03.

Recommendation: An Environmental Impact Statement (EIS) is not required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The source would be applying the Best Available Control Technology; the analyses indicate compliance with all applicable air quality rules and regulations.

Other groups or agencies contacted or which may have overlapping jurisdiction: Montana Historical Society, Montana Natural Heritage Program.

Individuals or groups contributing to this EA: Department of Environmental Quality - Air and Waste Management Bureau; Montana Historical Society; and the Montana Natural Heritage Program.

EA prepared by: Julie Merkel

Date: July 29, 2008